


COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)				ANGLE						
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				CSP	CAP	CSP	CAP					CSP	CAP	CSP	CAP	CSP	CAP	
TWO PIECE INTEGRAL FLANGE	1 1/2" x 1/4"	6"-10"	7"	0.052"-0.079"	0.048"-0.060"	0.052"	0.060"							2-3/8"	2-3/8"			
		12"-18"	7"	0.052"-0.079"		0.064"								2-1/2"				
		2 2/3" x 1/2"	7"	0.052"-0.079"	0.060"-0.105"	0.064"	0.060"							2-1/2"	2-1/2"			
UNIVERSAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"
		42"-60"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		THROUGH 72"	12"	0.052"-0.168"	0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		78"-84"	16 1/4"	0.168"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	
ANNULAR	2 2/3" x 1/2"	THROUGH 36"	7"	0.064"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	2-1/2"	2-1/2"	3-3/8"	3-3/8"	3-1/2"
		42"-72"	12"	0.064"-0.168"	0.075"-0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"		3-3/8"		5-1/2"
	3" x 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"		5-1/2"
		42"-108"	14"		0.060"-0.135"	0.060"						2" x 2" x 3/16"		3-1/2"		3-3/8"		
HELICAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
	3" x 1"	78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"
		48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"
HUGGER	2 2/3" x 1/2"	96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"		5-1/2"
		42"-108"	14"		0.060"-0.135"	0.060"						2" x 2" x 3/16"		3-1/2"		3-3/8"		
		12"-54"	4"	0.052"-0.109"		0.052"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
		60"-66"	4"	0.109"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
	REROLLED END	36"-48"	4"	0.138"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
		THROUGH 72"	10 1/2"	0.052"-0.168"		0.052"		0.079"	1/2"	7/8"	32 ksi							
	3" x 1"	78"-84"	10 1/2"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi							
		48"-90"	10 1/2"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi							
	REROLLED END	96"-120"	10 1/2"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi							
		48"-66"	7 1/2"	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
	5" x 1"	72"-90"	7 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
		48"-90"	7 1/2"	0.064"-0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi							
		48"-120"	12"	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi							
		48"-84"	12"	NOTE 0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi							
HAT BAND	2 2/3" x 1/2"	90"-120"	12"	0.138"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi							
		12"-54"	2 3/4"	0.052"-0.109"		0.064"						2 1/2" x 1 1/2" x 3/16"		1-1/2"				
		60"-66"	2 3/4"	0.109"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
		THROUGH 42"	2 3/4"	0.138"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"
	REROLLED END	THROUGH 66"	2 3/4"	0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi							
		THROUGH 66"	2 3/4"	0.168"		0.079"		0.079"	1/2"	7/8"	32 ksi							
		48"-72"	2 3/4"	0.064"-0.079"		0.064"						2 1/2" x 1 1/2" x 3/16"		1-1/2"				3-1/2"
		78"-90"	2 3/4"	0.064"-0.079"		0.064"						2 1/2" x 1 1/2" x 3/16"		1-1/2"				3-1/2"
	REROLLED END	48"-66"	2 3/4"	0.109"		0.064"						2 1/2" x 1 1/2" x 3/16"		1-1/2"				3-1/2"
		72"-108"	2 3/4"	0.109"		0.079"		0.109"	1/2"	7/8"	32 ksi							

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
 REGISTERED CIVIL ENGINEER					
May 1, 2006 PLANS APPROVAL DATE					
No. C34547 Exp. 9-30-07 CIVIL STATE OF CALIFORNIA					
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## NOTES:

- All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
- For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
- Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
- Use 1/4" gage line dimension on attached angle leg for rivets and spot welds.
- Band thickness shall not be less than:
  - 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
  - 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
- Dimensions, thicknesses and strengths shown are minimum.
- For pipe arches use same width band as for round pipe of equal periphery.
- Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
- Spot welds shall develop minimum required strength of strap.
- Pipe with rerolled ends having at least two 2 2/3" x 1/2" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2 2/3" x 1/2" corrugations.
- In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
- Two piece bands are required for pipes greater than 42" diameter.
- The 2 1/4" x 2" x 0.109" thick galvanized die-formed angle connector may be used in lieu of the 2" x 2" x 3/16" angle connector for standard joints only on pipes through 72" diameter.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## CORRUGATED METAL PIPE COUPLING DETAILS No. 5 STANDARD JOINT

NO SCALE

D97E